

TAKE CARE WHEN REPAIRING LEAKY BUILDINGS

Leaking buildings are a health risk, both for occupiers and for builders carrying out repairs. A variety of measures must be taken to help make remedial work safe.

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It's one o'clock in the morning. A child cries and a mother wakes – she is suffering from asthma and her child's breathing is also a problem. Why is this?

They were living in a house with serious leaks, and a compromised air environment. The baby's room had double the safe limit of bio-contamination, the master bedroom four times. The house contained a combination of common fungi – *Cladisporium*, *Aspergillus*, *Penicillium* and yeast. The walls behind the plasterboard were also affected by a toxic mould, *Stachybotrys atra*.

The solution was for them to leave the home until repairs could be carried out. These included proper ventilation of the subfloor, and thorough cleaning of every surface, including curtaining, bedding, carpeting, walls and floors.

Some people, particularly children and older people, are highly sensitive to bio-contaminated environments. Moist indoor environments should be avoided wherever possible and wet carpets should be checked. These can be infected with gram-negative bacteria which carry toxins that can lead to the development of respiratory problems.

Builders must take care

Builders who carry out repairs on leaky buildings can be affected by the unhealthy environment. In one house in Auckland's eastern suburbs, indoor testing revealed *Stachybotrys atra* in the air environment along with a range of other mould types. This house had levels of bio-contamination over eight times that of a house without problems, double that of the normal outdoor environment. One of the builders, who was highly sensitive to the contaminants, had a problem with anaphylaxis, and until the



Carrying out an inspection in a contaminated environment.

house could be cleaned, all contractors were ordered to wear Tyvek suits and dust particle masks with filters.

In another example, a house in central Auckland was found to have mould levels over 10 times the known safe levels. This posed a severe risk, not only for occupiers but also for the people undertaking the remediation work.

These situations demonstrate the care needed when approaching remediation of leaky buildings. Although most do not have these extremes, many leaky buildings are compromised by bio-contamination.

Hidden mould poses risks

The toxic mould *Stachybotrys atra* can form on cellulose-based building wraps, on the back of plasterboard paper backing, and on carpet hessian backing. It is normally contained in the wall cavity as it is sticky and the plasterboard can act like a safety barrier

to stop undue spread. Those undertaking repairs are the most at risk. *Stachybotrys atra* can cling when plasterboard is lifted out, and insulation particles can carry the mould into the air, contaminating it. Allowing the wet, sticky mould to dry can lead to it being blown around in the air.

The danger of taking off internal linings and leaving them open is obvious – the interior atmosphere can become a health hazard. Moulds and other toxin-bearing substances in the interior air environment of a building is a major issue.

Remediation case study

Removal of the cladding in an office building in South Auckland showed that the building wrap was coated with copious amounts of *Stachybotrys atra* mould. The structure was badly decayed and remediation was urgent. Air sampling inside the building, however, found safe current levels, which became

control levels for checking the process of repair and confirmation.

A strict regime was put in place to protect the occupiers and the remedial staff. New walls were built one metre inside the existing exterior walls to create an exclusion zone to stop the mould spreading. Air pressure was applied to the building interior to create a positive internal pressure to keep mould out. Excluding tunnels were set to the entry to control the flow of people and protect them from the building site hazards.



Kitted up for *Stachybotrys atra* removal.

Rules were set requiring people in the 'hot zone' to wear throw-away Tyvek suits, high-quality dust particle filters, gloves, eye protection and boots that had to be washed every day. No one was allowed to go from the contaminated area to the uncontaminated area. This protected the internal environment from being affected by people carrying moulds in with them. Similarly, no office workers were allowed into this 'hot zone'.

Washing hands was a critical issue for builders. Touching contaminated surfaces and then rubbing hands against eyes or mouth, or eating lunch, needs to be avoided. Strict hygiene rules were put in place as part of the overall health and safety plan.

The final act before areas were reopened was the cleaning down of surfaces by trained mould removal specialists.

Despite a remedial program that took many months, the internal environment was not compromised. The care undertaken achieved two things – the construction workers remained healthy and well despite working in a severely compromised environment, and the office workers remained safe throughout the process.

Buildings affected by leaks can be brought back to a sound and habitable state with a warm, dry and friendly environment. The workers who undertake this remedial role do not need to be compromised during this process. ♣

TIPS FOR LEAKY BUILDING REPAIR

To keep yourself and others safe when working on a suspected leaky building always:

- avoid cutting or removing internal linings during exploratory or remediation work
- carry out remediation from the *outside* wherever possible
- get the air sampled by a competent microbiologist if there are signs of respiratory or similar health problems
- ensure the remediation process answers all the issues raised by careful testing.

For small and containable contamination:

- use good washing techniques and remove contaminated material.

Where *Stachybotrys atra* or similar moulds are abundantly present:

- wash hands, change clothing and wear protective clothing.

Where contamination is widespread:

- it is extremely important a consult mould removal specialists
- a carefully planned programme *must* be put in place. ♣